**1. Generate Square of Student Roll Numbers**

roll\_numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

squared\_roll\_numbers = [num \*\* 2 for num in roll\_numbers]

print(squared\_roll\_numbers)

**Output:** [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]

**2. Extract Even Roll Numbers**

roll\_numbers = list(range(1, 21))

even\_roll\_numbers = [num for num in roll\_numbers if num % 2 == 0]

print(even\_roll\_numbers)

**Output:** [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]

**3. Convert Student Names to Uppercase**

students = ["Alice", "Bob", "Charlie", "David", "Eve"]

uppercase\_students = [name.upper() for name in students]

print(uppercase\_students)

**Output:** ['ALICE', 'BOB', 'CHARLIE', 'DAVID', 'EVE']

**4. Filter Students with 'A' in Their Names**

students = ["Alice", "Bob", "Charlie", "David", "Eve", "Aaron"]

students\_with\_a = [name for name in students if 'a' in name.lower()]

print(students\_with\_a)

**Output:** ['Alice', 'Charlie', 'David', 'Aaron']

**5. Calculate Average Marks from a List of Marks**

marks = [56, 78, 89, 45, 90, 67, 82]

average\_marks = sum(marks) / len(marks)

above\_average = [mark for mark in marks if mark > average\_marks]

print(above\_average)

**Output:** [78, 89, 90, 82] (Values above the calculated average)

**6. Create a List of Pass/Fail Based on Marks**

marks = [45, 78, 34, 89, 90, 55]

results = ["Pass" if mark >= 40 else "Fail" for mark in marks]

print(results)

**Output:** ['Pass', 'Pass', 'Fail', 'Pass', 'Pass', 'Pass']

**7. Generate Multiplication Table for 5 Using List Comprehension**

multiplication\_table = [5 \* i for i in range(1, 11)]

print(multiplication\_table)

**Output:** [5, 10, 15, 20, 25, 30, 35, 40, 45, 50]

**8. Extract Subjects with More Than 6 Characters**

subjects = ["Math", "Physics", "Chemistry", "Biology", "History"]

long\_subjects = [subject for subject in subjects if len(subject) > 6]

print(long\_subjects)

**Output:** ['Physics', 'Chemistry', 'Biology', 'History']

**9. Find Top 3 Highest Marks**

marks = [56, 78, 89, 45, 90, 67, 82]

top\_3\_marks = sorted(marks, reverse=True)[:3]

print(top\_3\_marks)

**Output:** [90, 89, 82]

**10. Create a Dictionary of Student Names and Their Lengths**

students = ["Alice", "Bob", "Charlie", "David"]

name\_lengths = {name: len(name) for name in students}

print(name\_lengths)

**Output:** {'Alice': 5, 'Bob': 3, 'Charlie': 7, 'David': 5}